

FULL SPEAKER BIOGRAPHY and ABSTRACT

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Dr. Samuel Weiss is Professor and Alberta Heritage Foundation for Medical Research (AHFMR) Scientist in the Departments of Cell Biology & Anatomy and Pharmacology & Therapeutics at the University of Calgary Faculty of Medicine, and inaugural Director of the Hotchkiss Brain Institute. Two major discoveries are the hallmarks of Dr. Weiss' research career. In 1985, together with Dr. Fritz Sladeczek, Dr. Weiss discovered the metabotropic glutamate receptor - now a major target for pharmaceutical research and development for neurological disease therapies. In 1992, together with Brent Reynolds, Dr. Weiss discovered neural stem cells in the brains of adult mammals. Dr. Weiss' current research focuses on: (1) elucidating the role for new adult neurons in the formation of social memories and (2) understanding adult human brain tumour stem cell biology, in particular the mechanisms of autocrine growth factor signalling that lead to uncontrolled growth.

Adult neurogenesis and the formation of social memories

Two regions of the mammalian central nervous system, the olfactory bulb and the dentate gyrus of the hippocampus, are the primary sites of adult neurogenesis. However, the selectivity of these brain structures as adult neurogenesis sites, and the ethological relevance of newly generated adult neurons, remains poorly understood. Recent findings from our laboratory suggest that the co-coordinated production of new adult neurons, in the olfactory bulb and hippocampus of mice, contributes to the formation of new olfactory memories that are important for both mating and offspring recognition behaviors.

What is the central hypothesis of my presentation?

Simultaneous production of new neurons in the adult brain contributes to important social memories and behaviors.

What is the most important observation I will discuss?

Disrupting adult neurogenesis will disrupt forming memories important for mate selection and offspring recognition.

What is the translational significance?

Information emerging from our understanding the roles and mechanisms of adult neurogenesis may be harnessed for the regulation of adult brain plasticity and repair.